CLAIMS

1. A recording ink comprising:

water,

a wetting agent,

a surfactant, and a colorant

wherein the wetting agent comprises 3-methyl-1,3-butanediol.

2. The recording ink according to claim 1,

wherein the wetting agent is any one of (1) a combination of 3-methyl-1,3-butanediol and glycerin and (2) a combination selected from the group consisting of combinations of (i) 3-methyl-1,3-butanediol, glycerin and at least one of (ii) 1,3 butanediol, triethylene glycol, 1,5-pentadiol, propylene glycol, 2-methyl-2,4-pentadiol, diethylene glycol, dipropylene glycol, trimethylol propane and trimethylol ethane.

3. The recording ink according to any one of claims 1 and 2,

wherein the amount of the wetting agent in the recording ink is 20 % by mass to 50 % by mass.

4. The recording ink according to any one of claims 1 to 3,

wherein the colorant is an aqueous dispersion of polymer fine particles comprising a colorant.

5. The recording ink according to claim 4,

wherein the polymer of the polymer fine particles is any one of a vinyl polymer and a polyester polymer.

6. The recording ink according to any one of claims 1 to 5,

wherein the surfactant is one selected from the group consisting of an anionic surfactant, a nonionic surfactant, an amphoteric surfactant and a surfactant containing fluorine.

7. The recording ink according to claim 6,

wherein the surfactant containing fluorine is at least one of compounds represented by the following formula (I):

$$CF_3CF_2(CF_2CF_2)_m-CH_2CH_2O(CH_2CH_2O)_nH \qquad \text{Formula (I)}$$

wherein "m" is an integer of 0 to 10 and "n" is an integer of 1 to 40.

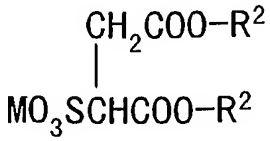
8. The recording ink according to claim 6,

wherein the anionic surfactant, the nonionic surfactant and the ampholytic surfactant are at least one compound selected from the group consisting of compounds represented by the following formulae (II) to (X):

$$R^1-O-(CH_2CH_2)_hCH_2COOM \qquad \text{Formula (II)}$$

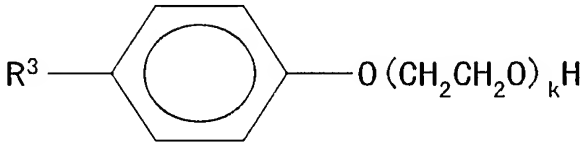
wherein R^1 represents an alkyl group; M represents any one

of an alkali metal ion, a quaternary ammonium ion, a quaternary phosphonium ion and an alkanolamine ion; and h is an integer of 3 to 12,



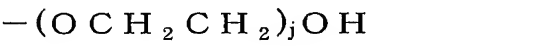
Formula (III)

wherein R^2 represents an alkyl group and M represents any one of an alkali metal ion, a quaternary ammonium ion, a quaternary phosphonium ion and an alkanolamine ion,



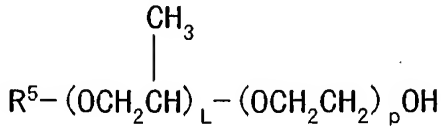
Formula (IV)

wherein R^3 represents a hydrocarbon group and k is an integer of 5 to 20,



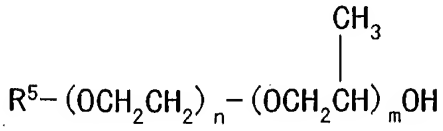
Formula (V)

wherein R^4 represents a hydrocarbon group and j is an integer of 5 to 20,



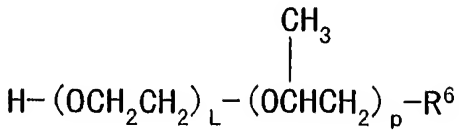
Formula (VI)

or



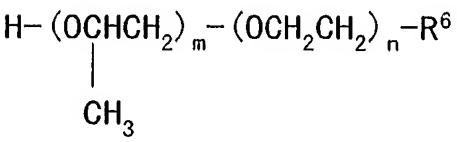
Formula (VI')

wherein R^5 represents a hydrocarbon group and L, m, n and p are individually an integer of 1 to 20,



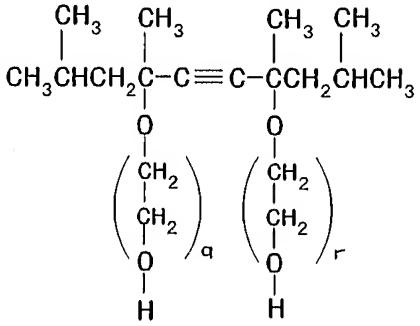
Formula (VII)

or



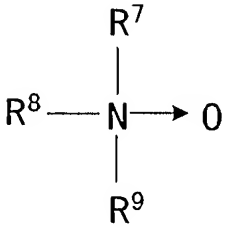
Formula (VII')

wherein R^6 represents a hydrocarbon group and L, m, n and p are individually an integer of 1 to 20,



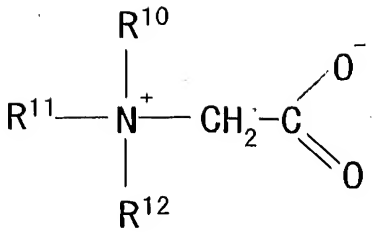
Formula (VIII)

wherein q and r are individually an integer of 0 to 40,



Formula (IX)

wherein R^7 and R^8 represent an alkyl group or a hydroxyalkyl group and R^9 represents an alkyl group or an alkenyl group,



Formula (X)

wherein R^{10} and R^{11} represent an alkyl group or a hydroxyalkyl group and R^{12} represents an alkyl group.

9. The recording ink according to any one of claims 1 to 8, wherein the recording ink comprises at least one of a polyol compound having a carbon number of 8 to 11 and a glycol ether compound.

10. The recording ink according to claim 9, wherein the C_8 to C_{11} polyol compound is any one of 2-ethyl-1,3-hexanediol and 2,2,4-trimethyl-1,3-pentanediol.

11. The recording ink according to any one of claims 1 to 10, wherein the viscosity of the recording ink at 25 °C is 5 mPa·sec to 20 mPa·sec.

12. The recording ink according to any one of claims 1 to 11, wherein the recording ink is at least one of a cyan ink, a magenta ink, a yellow ink and a black ink.

13. The recording ink according to claim 12,

wherein the black ink comprises a carbon black as a colorant, and the carbon black has in the surface thereof a hydrophilic group and can be dispersed in water in the absence of a dispersant.

14. An ink cartridge comprising:

a recording ink contained in a container,

wherein the recording ink is the recording ink according to any one of claims 1 to 13.

15. An inkjet recording apparatus comprising:

an ink ejecting unit by which to a recording ink, a stimulation is applied and the recording ink is ejected for forming the image,

wherein the recording ink is the recording ink according to any one of claims 1 to 13.

16. The inkjet recording apparatus according to claim 15,

wherein the stimulation is one selected from the group consisting of a heat, a pressure, a vibration and a light.

17. The ink jet recording apparatus according to any one of claims 15 to 16,

wherein at least a part of the liquid space part, fluid resistance part, vibrating plate and nozzle of the inkjet head is produced using a material comprising at least one of silicone and

nickel.

18. The inkjet recording apparatus according to claim 17, wherein the nozzle of the inkjet head has a diameter of 30 μm or less.

19. An inkjet recording process comprising:

ejecting a recording ink by which to the recording ink, a stimulation is applied and the recording ink is ejected for forming the image,

wherein the recording ink is the recording ink according to any one of claims 1 to 13.

20. The inkjet recording process according to claim 19, wherein the stimulation is one selected from the group consisting of a heat, a pressure, a vibration and a light.

21. An ink record comprising:

an image formed on a recording medium using a recording ink,

wherein the recording ink is the recording ink according to any one of claims 1 to 13.